Environmental Assessment Checklist

Project Name: MSO West FY17-18 PCT's
Proposed Implementation Date: 2017, 2018 and 2019
Proponent: Missoula Unit, Southwest Land Office, Montana DNRC
County: Mineral

Type and Purpose of Action

Description of Proposed Action:

The Missoula Unit of the Montana Department of Natural Resources and Conservation (DNRC) is proposing the MSO West FY17 pre-commercial thinning projects. The projects are located Northwest of Superior, MT and also located West and Southwest of St. Regis, MT. (refer to vicinity & project maps in Attachment A) and include the following sections:

Beneficiary	Legal Description	Total Acres	Treated Acres
Common Schools	**Sec 36 T19N R29W, Sec 34,35 T18N R27W Sec 16 T17N R26W**	**2373**	**337**
Public Buildings	**Sec 9, 10, 11 , 15 T17N R26W**	**1640**	**204**
MSU 2nd Grant			
MSU Morrill			
Eastern College-MSU/Western College-U of M			
Montana Tech			
University of Montana			
School for the Deaf and Blind			
Pine Hills School			
Veterans Home			
Public Land Trust			
Acquired Land			
Totals		**4013**	**541**

Objectives of the projects include:

- Increase growth and vigor of the stand(s)
- Achieve a more uniform stem distribution
- Concentrate growth on fewer trees in order to attain merchantable size in a shorter time frame.
- Increased vigor to reduce the threat of insect and disease infestation.

Proposed activities include:

Action	Quantity
Proposed Harvest Activities	
Clearcut	
Seed Tree	
Shelterwood	
Selection	
Commercial Thinning	
Salvage	
Total Treatment Acres	
Proposed Forest Improvement Treatment	
Pre-commercial Thinning	541
Planting	
Proposed Road Activities	
New permanent road construction	
New temporary road construction	
Road maintenance	
Road reconstruction	
Road abandoned	
Road reclaimed	
Other Activities	

Duration of Activities:	Summer/fall 2017 & 2018
Implementation Period:	Summer/fall 2017 & 2018

The lands involved in this proposed project are held in trust by the State of Montana. (Enabling Act of February 22, 1889; 1972 Montana Constitution, Article X, Section 11). The Board of Land Commissioners and the DNRC are required by law to administer these trust lands to produce the largest measure of reasonable and legitimate return over the long run for the beneficiary institutions (Section 77-1-202, MCA).

The DNRC will manage lands involved in this project in accordance with:

- The State Forest Land Management Plan (DNRC 1996),
- Administrative Rules for Forest Management (ARM 36.11.401 through 471),
- The Montana DNRC Forested State Trust Lands Habitat Conservation Plan (HCP) (DNRC 2010)
- All other applicable state and federal laws.

Project Development

SCOPING:

DNRC specialists were consulted, including: Jeff Collins-Hydrologist, Soil Scientist & Garrett Schairer-Wildlife Biologist

Issues and concerns were incorporated into project planning and design and would be implemented in associated contracts.

OTHER GOVERNMENTAL AGENCIES WITH JURISDICTION, LIST OF PERMITS NEEDED: *(Conservation Easements, Army Corps of Engineers, road use permits, etc.)*

- **Montana Department of Environmental Quality (DEQ) -** DNRC is classified as a major open burner by DEQ and is issued a permit from DEQ to conduct burning activities on state lands managed by DNRC. As a major open-burning permit holder, DNRC agrees to comply with the limitations and conditions of the permit.

- **Montana/Idaho Airshed Group-** The DNRC is a member of the Montana/Idaho Airshed Group which was formed to minimize or prevent smoke impacts while using fire to accomplish land management objectives and/or fuel hazard reduction (Montana/Idaho Airshed Group 2006). The Group determines the delineation of airsheds and impact zones throughout Idaho and Montana. Airsheds describe those geographical areas that have similar atmospheric conditions, while impact zones describe any area in Montana or Idaho that the Group deems smoke sensitive and/or having an existing air quality problem (Montana/Idaho Airshed Group 2006). As a member of the Airshed Group, DNRC agrees to burn only on days approved for good smoke dispersion as determined by the Smoke Management Unit.

- **United States Fish & Wildlife Service**- DNRC is managing the habitats of threatened and endangered species on this project by implementing the Montana DNRC Forested Trust Lands HCP and the associated Incidental Take Permit that was issued by the United States Fish & Wildlife Service (USFWS) in February of 2012 under Section 10 of the Endangered Species Act. The HCP identifies specific conservation strategies for managing the habitats of grizzly bear, Canada lynx, and three fish species: bull trout, westslope cutthroat trout, and Columbia redband trout. This project complies with the HCP. The HCP can be found at www.dnrc.mt.gov/HCP.

ALTERNATIVES CONSIDERED:

No-Action: The proposed pre-commercial thinning would not occur. The stands would remain at overstocked levels with low production rates.

Action Alternative (Provide a brief description of all proposed activities):

Burr-Eato PCT: ***136 Acres Sec 34, 35 T18N R27W***
The proposed units would be thinned to an approximate ***13' spacing***. Preferred leave trees would be PP, WL, DF, and LPP. Residual stand densities after thinning would be ***250-350***

trees per acre (TPA). Approximately ***2,200 TPA would be removed***. The stand is currently overstocked and the post thin spacing would support more optimum conifer growth and health. The unit would be hand thinned, and would include all road cut slopes within the units. Along the western unit boundary line of Unit 1 slash would be lopped to a height of 18 inches for one chain (66') in along the interior border which meets up with this property line. All other slash would be lopped and scattered with a lop height of 18 inches. No thinning would occur in Streamside Management Zones (SMZ).

Pardee at the Moon Tower PCT: ***250 acres Sec 9, 10, 11, 15, 16 T17N R26W***
The proposed units would be thinned to an approximate ***13' spacing***. Preferred leave trees would be PP, WL, DF, and LPP. Residual stand densities after thinning would be ***225-300 trees per acre*** (TPA). On average among all units ***3,190 stems per acre would be removed***. The stands are currently overstocked and the post thin spacing would support more optimum conifer growth and health. The units would be hand thinned, and would include all road cut slopes within the units. In units 1, 3, 4, 8, 9 and 10 along the northern property boundary, all slash would be lopped and scattered with lop height of 18 inches to within one chain (66') of the unit boundary. In all remaining portions of those units and all other units all other slash would be lopped and scattered with a lop height of 18 inches. No thinning would occur in SMZs.

12 Honest Miles PCT: 155 acres Sec 36 T19N R29W

The proposed units would be thinned to an approximately ***13' spacing***. Preferred leave trees would be WWP, WL, DF, and LPP. Residual stand densities after thinning would be ***200-500 trees per acre*** (TPA). Higher stocking levels would occur where western white pine exists, assuming some mortality from White Pine Blister Rust. On average among all units ***4,166 stems/acre would be removed***. The stands are currently overstocked and the post thin spacing would support more optimum conifer growth and health. The units would be hand thinned, and would include all road cut slopes within the units. All units would be slashed, lopped and scattered with a lop height of 18 inches. No thinning would occur in Streamside Management Zones SMZ.

Impacts on the Physical Environment

Evaluation of the impacts of the No-Action and Action Alternatives including **direct, secondary, and cumulative** impacts on the Physical Environment.

VEGETATION:

Vegetation Existing Conditions:

Burr-Eato PCT: (136 acres)

Units 1, 2, 3, 4, 6, 7, 8 and 9 (130 acres) These stands are dominated by natural Douglas-fir regeneration occurring intermixed and in the understory among planted species of Ponderosa pine and western larch with an occasional lodgepole or grand fir scattered throughout. These stands are dominated by regeneration from even-aged management of these former Forest Service lands. Evenly spaced planted species exist throughout the stand. Some thick clumps of western larch, Douglas-fir, grand fir and lodgepole pine natural regeneration exists with some

tight spacing between these existing clumps in the stand. All north facing units have thick, uniform western larch growing closely together. WL of 1-6" dbh is the most prevalent of planted species/size class present in these units with some ranging up to 8" dbh. This species/size class would be favored as leave trees for their notably large size compared to other species throughout these units. Some smaller size class Douglas-fir (1-2" dbh and less) clumps are prevalent throughout these stands. The stands are currently overstocked with about 3,000 TPA and would be thinned to about 250-333 TPA.

Unit 5 (6 acres) the stand is dominated by ponderosa pine, western larch and with sporadic Douglas-fir and Ponderosa pine >1" dbh. Ponderosa Pine >1" dbh is the most prevalent species/size class present with an average height of 6'. Larger size classes (2" to 5" dbh) of Douglas-fir, western larch and lodgepole pine are dispersed throughout the stand. The stand is currently overstocked with about 2,250 TPA.

Pardee at the Moon Tower PCT:

Units 4, 8, 9, 10(118 acres): These stands are predominantly north facing with some west facing slopes. They are dominated by Douglas fir natural regeneration which appears to do well on these sites. Even though these units were originally restocked with ponderosa pine and western larch seedlings, Douglas fir has been able to dominate with some lodgepole pine being able to regenerate as well. We would attempt to moderate the Douglas fir population via thinning to promote species diversity. The units are fairly uniform in stand structure with DF of ≥1" dbh being the most prevalent species/size class. Larger size classes (1" to 5" dbh) of all species are dispersed among these small (1" dbh and less) DF clumps. These stands are currently overstocked with an average of 2,600 TPA. These stands were originally owned by USFS and were all part of larger Clearcut units.

Unit 1 (14 acres): Is a mix of ponderosa, western larch, grand fir and Douglas-fir, with Douglas-fir being most prevalent. This unit was also planted with ponderosa pine and western larch with grand fir, lodgepole and Douglas-fir naturals occurring throughout. Grand fir are present in the bottom of a steep draw. Douglas-fir of >1" dbh size class are the most prevalent species/size class present. Larger size classes (1" to 6" dbh) of all species are dispersed among these small (1" dbh and less) DF clumps. The stand is currently overstocked with about 2,900 TPA. The largest cut trees are ponderosa pine averaging 4.6" dbh, Most of the cut trees are DF averaging 1.4" dbh at 1000 TPA.

Unit 3 (51 acres) is a fairly evenly stocked unit of ponderosa pine, Douglas-fir**,** western larch and a few lodgepole pine throughout the stand. Western larch is the dominant species in this unit averaging 1000 TPA. Diversity of all species in this unit would be maintained in the thinning. The largest trees to be cut in this unit are WL averaging 8" dbh. The unit is overstocked with planted seedlings at 2,350 TPA and would be thinned to about 350 TPA. DF of the >3" dbh size class are the next most prevalent species/size. Larger size classes (2" to 6" dbh) of all species are dispersed throughout the unit.

Units 5 & 6 (67 acres) these two units are almost identical in composition and species mix. Both are overstocked with an even mix of planted ponderosa pine and western larch. Douglas-fir natural regen is present with small amounts of natural occurring lodgepole pine and grand fir. PP and WL of >2.5" dbh and are the most prevalent species/size class present. The second most prevalent species/size class is Douglas-fir averaging 1.3" dbh. Larger size classes of all species (3" to 6" dbh) are dispersed among these units. The stands are currently overstocked

with about 2,400 TPA and would need to be 2100 TPA cut to meet our spacing and PCT standards.

These units are heavily overstocked with planted ponderosa pine, western larch and natural Douglas-fir with some lodgepole pine throughout. The most prevalent species/size class are western larch and ponderosa pine at >2.5" dbh. Douglas-fir is the next most dominant size class averaging 1.3" dbh. These stands overstocked averaging 7,000 TPA. The cut would be about 6,666 TPA in these stands leaving approximately 334 TPA of desirable species and health.

12 Honest Miles *PCT*

Units 1 (64 acres). This unit is dominated by natural regeneration of grand fir and highly overstocked with 3,000 TPA. Some planted seedlings are also present, of which, western larch are the dominant species and lodgepole pine with mixed Douglas-fir naturals are the next most prevalent species. The grand fir size class averages about 5 feet in height and 1/2" dbh and would be completely removed. Lodgepole pine has an average size of 2" to 6" dbh and populates the unit with 2,000 TPA. These would be thinned down to 42 TPA with most of the cut trees having a dbh of 2.2". Due to the dense nature of this unit, there would seem like an unusually high number of leave trees left. Because a lot of the lodgepole are already 6" dbh and show exceptional height, we would like to take advantage of this stands growing potential for lodgepole pine and keep them.The unit is stocked with almost 7,000 TPA and would be cut down to 667 TPA averaging about 8' spacing among lodgepole and 13' for western larch and Douglas-fir species.

Unit 2 (46 acres). This unit is heavily overstocked with planted lodgepole pine, western larch and natural Douglas-fir, grand fir and the occasional western white pine throughout. The most prevalent species/size class are grand fir and lodgepole pine at >3" dbh. Western larch is the next most dominant size class averaging 2.5" dbh. These stands are overstocked averaging 2,000 TPA. The cut would be about 1,500 TPA in these stands leaving approximately 170 TPA of desirable species and health. With western white pine included in the leave tree count it would bump the leave TPA to 583 assuming the white pine survival rate is 100%. The reason for leaving all western white pine is to attempt to proliferate the species granted it can resist White pine Blister Rust.

Unit 3 (24 acres) this units is heavily overstocked with planted western larch and lodgepole pine. Natural regeneration is heavy to grand fir, Douglas-fir, spruce and western white pine throughout. The most prevalent planted species/size class are western larch and lodgepole pine averaging 1-3" dbh. The next most prevalent species/size class are natural grand fir at >1" dbh and Douglas-fir averaging >1" dbh. These stands are heavily overstocked averaging 4,000 TPA. The cut would be about 3,250 TPA in these stands leaving approximately 750 TPA of desirable species and health.

Units 4 (20 acres). This ~~unit~~ is a seed tree harvest unit harvested about 20 years ago with an overstory of western larch with a few Douglas-fir, subalpine fir and western red cedar. Currently the understory is heavily overstocked with all natural regeneration of western larch, subalpine fir, grand fir, western red cedar and lodgepole pine. These species are distributed equally throughout the stand except western larch which is 6 times more prevalent throughout the stand with an average dbh of >.5 -1". Western red cedar and lodgepole pine are the next most dominant size class averaging 2" dbh. This stand is currently carrying about 3,000 TPA. The cut would be about 2,625 TPA in these stands leaving approximately 375 TPA of desirable species and health.

Vegetation	Impact								Can Impact Be Mitigated?	Comment Number
	Direct & In-Direct				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High		
No-Action										
Noxious Weeds			**X**				**X**			
Rare Plants	**X**				**X**					
Vegetative community		**X**				**X**				
Old Growth	**X**				**X**					
Action										
Noxious Weeds			**X**				**X**		**Yes**	**1**
Rare Plants	**X**				**X**					
Vegetative community		**X**				**X**			**Yes**	**2**
Old Growth	**X**				**X**					

Comments:

1. Existing weeds, mainly knapweed and houndstongue are common in the Lower Clark Fork region, especially along roads and disturbed areas. Increased activity in the project areas, as well as a more open canopy, can lead to an increased risk of noxious weeds.
2. Under the Action Alternative, unhealthy Douglas-fir would be removed favoring regeneration of species consistent with the DFC (desired future condition. Competition among conifers would be reduced, allowing the remaining stands to capture more water, sunlight and nutrients, thereby having positive direct, secondary and cumulative impact.

Vegetation Mitigations:

- Leave phenotypically superior young conifers on appropriate spacing as outlined. Where slash is piled provide adequate spacing to allow burning while protecting healthy advanced conifer regeneration.

- Clean equipment prior to entering the project area to minimize the potential of introducing new weeds to the project area.

DNRC conducts roadside spraying on prioritized trust lands in the Lower Clark Fork region, yet noxious weeds continue to occur, spread by disturbance, equipment operations, animals and wind. Project areas would be monitored for noxious weeds after implementation and herbicide may be applied when and if needed.

SOIL DISTURBANCE AND PRODUCTIVITY:

Soil Disturbance and Productivity Existing Conditions:

Soil Disturbance and Productivity Existing Conditions: No unstable slopes or especially unique geology features are present. The primary soil types are complexes of well drained loams to very gravelly sandy loams on mountain sideslopes in the project area. Primary concerns are rutting of roads if operated on when soils are wet. The proposed thinning stands have extensive conifer regeneration and low to moderate coarse woody debris on site. Past harvests have occurred in the area, leaving existing skid trails and landings. These previous selection harvests have re-vegetated, and even though there was past disturbance, cumulative effects were low in the 12- mile and Burr-Eato (4-mile creek) thinning project areas and there are moderate cumulative effects in the fire area of Pardee Creek.

Soil Disturbance and Productivity	Impact								Can Impact Be Mitigated?	Comment Number
	Direct & In-Direct				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High		
No-Action										
Physical Disturbance (Compaction and Displacement)		**X**				**X**				
Erosion			**X**				**X**		**On Roads**	
Nutrient Cycling	**X**				**X**					
Slope Stability	**X**				**X**					
Soil Productivity		**X**	**X**			**X**				
Action										
Physical Disturbance (Compaction and Displacement)		**X**				**X**			**Yes**	**1**
Erosion			**X**				**X**			**1**
Nutrient Cycling		**X**				**X**			**Yes**	**2**
Slope Stability	**X**				**X**					
Soil Productivity		**X**	**X**			**X**			**Yes**	**2**

Comments: Based on hand felling, implementation of BMP's and mitigation measures, there are low risks of harvest impacts to soils from disturbance in the forms of erosion, displacement, and compaction with operations during suitable ground conditions. No new roads are proposed.

1. Hand labor thinning is unlikely to have a measurable effect on soils.

2. Slash which has been lopped and scattered would decompose over time and return nutrients to the soils. Where slash is piled, nutrients would be concentrated at the piles. Where the unit would be lop-and-scattered not all the nutrients in the slash would be available immediately.

Soil Mitigations:

- BMP's would be implemented on all roads and within the units. Unit boundaries were all buffered to exclude the SMZ's. Slash from the lop-and-scatter thinning process would be left in the units to mitigate erosion risks.

- Residual slash from cut trees would be lopped and scattered to 18 inches and left within the unit. Nutrients would be available to soils as they decompose.

WATER QUALITY AND QUANTITY:

Water Quality and Quantity Existing Conditions: The average slope for all units ranges from 5% up to 40%.
Water Quality and Quantity Existing Conditions: Water quality is impacted by road use and inadequate road drainage on portions of roads in the Lower Clark Fork region and mixed uses of timber harvest, grazing and rural development. The proposed pre-commercial thinning would use existing roads that are generally stable and meet BMP's for road surface drainage based on most recent road inventories. Streams in the Burr-Eato (4-Mile) project area and along access roads are intermittent. The 12 mile project area has several existing perennial stream crossings, all of which have adequate road surface drainage and meet BMP's. There are two existing culverts that have some flow restriction due to size. The Pardee Creek project area uses existing roads that were recently maintained and improved to meet BMP's following the 2013 W. Mullan Fire. There are several existing perennial stream crossings on the Pardee access route, all of which have adequate road surface drainage. There are moderate cumulative effects to water quality from past harvest in the area and effects of the 2013 West Mullan Fire specific to the Pardee Creek project area.

Water Quality and Water Quantity	Impact								Can Impact Be Mitigated?	Comment Number
	Direct & In-Direct				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High		
No-Action										
Water Quality		**X**	**X**			**X**	**X**			
Water Quantity		**X**				**X**				
Action										
Water Quality		**X**	**X**			**X**	**X**		**Y**	**1**
Water Quantity		**X**				**X**			**Y**	**1**

Comments:

1. *1. The proposed thinning would remove overstocked young conifers to improve spacing and improve water use/growth, and the dispersed nature of thinning is not expected to have a measurable influence on: water quality, the amount or timing of runoff (water yield), or downslope stream stability from the proposed project area when compared to the effects anticipated under no action. The proposed hand thinning of forest stands would be accessed by existing roads and no new roads are proposed. Based on implementation of BMP's and mitigation measures, there is low risk of direct, indirect or additional cumulative effects to water quality or downstream beneficial uses from the Action Alternative.*

Water Quality & Quantity Mitigations:

- The Montana Administrative Rules for Forest Management; Watershed Management and watershed RMS would be implemented. BMP's and SMZ's would be implemented and no thinning is proposed in SMZ's, RMZ's or wetlands. Unit boundaries were all buffered to exclude the SMZ's.
- Thinning operations would be restricted to dry or frozen conditions to avoid road damage to drainage features that may affect sediment to streams.

FISHERIES:

Fisheries Existing Conditions: There are no streams containing fish adjacent to the proposed thinning units in the Burr-Eato (4-Mile) or Pardee @ the Moon Tower (Pardee) project areas. There would be no proposed thinning within SMZ's, RMZ's or wetlands and thus there would be no effect on fish habitat metrics of stream shading, stream temperature, large woody or debris compared to no-action and there concerns are dismissed from further analysis. Primary concerns are the potential for sediment from roads that may impact fish habitat. Previous DNRC analysis for timber management in the Fourmile, Pardee and 12-Mile drainages were reviewed and are incorporated by reference.

The potential effects to downstream fisheries would be increases in sediment and there is low potential for water quality or fisheries impacts downstream. Westslope cutthroat trout are known to occur in 12 Mile Creek, Pardee Creek and several unnamed tributaries that are crossed by existing access roads to the proposed thinning project units. A crossing on lower Pardee Creek was improved and one crossing removed by the Lolo National Forest to reduce sediment, improve fish habitat and connectivity following the west Mullan fire of 2013.

The 12 Mile project area has several existing perennial stream crossings, all of which have adequate road surface drainage and meet BMP's. There are two existing culverts that have some flow restriction due to size that have a moderate cumulative effect on fisheries that would be planned for future infrastructure improvements, and would not be addressed by these projects. The Burr-Eato project area would be accessed by existing roads along Fourmile Creek and Slowey Creek drainages. No fisheries are identified, all existing access roads to the proposed thinning areas meet BMP's for road drainage and sediment control, based on DNRC's road inventory.

As described in the water quality section, the dispersed nature of thinning is not expected to have a measurable influence on the amount or timing of runoff (water yield), downslope stream stability, or sediment that may affect fish habitat from the proposed project area when compared to the effects anticipated under no action. The Action Alternative would have no measurable change in the direct, secondary or cumulative effects to fisheries compared to no - Action Alternative.

Table FS-1 Summary Effects of the Alternatives on Fishery Resources

Fishery Resources	Impact								Can Impact Be Mitigated?
	Direct & In-Direct				Cumulative				
	No	Low	Mod	High	No	Low	Mod	High	
No-Action									

Table FS-1 Summary Effects of the Alternatives on Fishery Resources									
Fishery Resources	Impact								Can Impact Be Mitigated?
	Direct & In-Direct				Cumulative				
	No	Low	Mod	High	No	Low	Mod	High	
Water Quality-Quantity Sediments		X	X				X		NA
Fish Habitat Connectivity			X			X			NA
Action									
Water Quality- Quantity Sediment Delivery		X	X				X		Y
Fish Habitat Connectivity			X				X		NA

Comments:
1. No fisheries streams occur within the proposed units. Existing roads have been recently improved to meet BMPs.

Fisheries Mitigations:
1. The Montana Administrative Rules for Forest Management; Watershed Management and watershed RMS would be implemented. BMP's would be implemented on all roads and within the unit. Unit boundaries were all buffered to exclude the SMZ's. Slash from the lop-and-scatter thinning process would be left in the unit.

WILDLIFE:

Evaluation of the impacts of the No-Action and Action Alternatives including **direct, secondary, and cumulative** impacts on Wildlife (including unique, endangered, fragile, or limited environmental resources).

No-Action: Existing stands would continue to mature in a fairly dense condition. Stand growth and maturation would continue at relatively slow speeds, which would delay usefulness of these stands longer into the future for a variety of wildlife that use larger diameter forested conditions. No further potential for disturbance to any wildlife species would be anticipated. Continued wildlife use at levels similar to present conditions would be anticipated.

Action Alternative (see Wildlife table below):

Wildlife	**Impact**								**Can Impact be Mitigated?**	**Comment Number**
	Direct and Indirect				**Cumulative**					
	No	Low	Mod	High	No	Low	Mod	High		
Threatened and Endangered Species										
Grizzly bear *(Ursus arctos)* Habitat: Recovery		**X**				**X**			**Y**	**W-1**

Wildlife	Impact								Can Impact be Mitigated?	Comment Number
	Direct and Indirect				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High		
areas, security from human activity										
Canada lynx (*Felix lynx)* Habitat: Subalpine fir habitat types, dense sapling, old forest, deep snow zone		**X**				**X**			**Y**	**W-2**
Yellow-Billed Cuckoo (*Coccyzus americanus*) Habitat: Deciduous forest stands of 25 acres or more with dense understories and in Montana these areas are generally found in large river bottoms	**X**				**X**					
Sensitive Species										
Bald eagle *(Haliaeetus leucocephalus)* Habitat: Late-successional forest more than 1 mile from open water	**X**				**X**					**W-3**
Black-backed woodpecker *(Picoides arcticus)* Habitat: Mature to old burned or beetle-infested forest	**X**				**X**					
Coeur d'Alene salamander *(Plethodon idahoensis)* Habitat: Waterfall spray zones, talus near cascading streams	**X**				**X**					
Columbian sharp-tailed grouse *(Tympanuchus Phasianellus columbianus)* Habitat:	**X**				**X**					

Wildlife	Impact								Can Impact be Mitigated?	Comment Number
	Direct and Indirect				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High		
Grassland, shrubland, riparian, agriculture										
Common loon *(Gavia immer)* Habitat: Cold mountain lakes, nest in emergent vegetation	**X**				**X**					
Fisher *(Martes pennanti)* Habitat: Dense mature to old forest less than 6,000 feet in elevation and riparian		**X**				**X**			**Y**	**W-4**
Flammulated owl *(Otus flammeolus)* Habitat: Late-successional ponderosa pine and Douglas-fir forest		**X**				**X**			**Y**	**W-5**
Gray Wolf *(Canis lupus)* Habitat: Ample big game populations, security from human activities		**X**				**X**			**Y**	**W-6**
Harlequin duck *(Histrionicus histrionicus)* Habitat: White-water streams, boulder and cobble substrates	**X**				**X**					
Northern bog lemming *(Synaptomys borealis)* Habitat: Sphagnum meadows, bogs, fens with thick moss mats	**X**				**X**					
Mountain plover (*Charadrius montanus*) Habitat: short-grass prairie & prairie dog towns	**X**				**X**					

Wildlife	Impact								Can Impact be Mitigated?	Comment Number
	Direct and Indirect				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High		
Peregrine falcon *(Falco peregrinus)* Habitat: Cliff features near open foraging areas and/or wetlands	**X**				**X**					
Pileated woodpecker *(Dryocopus pileatus)* Habitat: Late-successional ponderosa pine and larch-fir forest		**X**				**X**			**Y**	**W-7**
Townsend's big-eared bat *(Plecotus townsendii)* Habitat: Caves, caverns, old mines	**X**				**X**					
Wolverine *(Gulo gulo)* Habitat: Alpine tundra and high-elevation boreal forests that maintain deep persistent snow into late spring	**X**				**X**					
Big Game Species										
Elk		**X**				**X**			**Y**	**W-8**
Whitetail		**X**				**X**			**Y**	**W-8**
Mule Deer		**X**				**X**			**Y**	**W-8**
Bighorn Sheep	**X**				**X**					
Other										

Comments:

W-1 The project area is outside of the grizzly bear recovery zone and the 'non-recovery occupied habitat' as mapped by grizzly bear researchers and managers to address increased sightings and encounters of grizzly bears in habitats outside of recovery zones. Occasional use by grizzly bears could occur as bears continue moving out of the recovery zone to the north of the project area and grizzly bears have been documented in the vicinity in the past. Activities would occur during the non-denning period, thus disturbance to grizzly bears could potentially occur. Negligible changes to grizzly bear habitats would occur. No changes to open road densities, security habitats, or human–related food, garbage, or other unnatural grizzly bear attractants would occur.

W-2. The majority of the proposed units do not contain potential lynx habitats, but approximately 159 acres of suitable Canada lynx habitats exist in the proposed thinning units in 12 Honest Miles PCT project area. These potential habitats are largely summer foraging habitats (85 acres), with lesser amounts of Other Suitable habitats (46 acres) and winter foraging habitats (28 acres). These habitats would be thinned to 13 foot by 13 foot spacing and would likely continue to be suitable for Canada lynx following proposed treatments. Within these units, small shade tolerant trees (such as sub-alpine fir and spruce) would be retained where possible to provide potential habitat structure for snowshoe hares by increasing the levels of horizontal cover and accelerating the development of multi-storied stands. Thus, negligible changes to lynx habitats would be anticipated.

W-3 A small portion (roughly 42 acres) of the proposed thinning units would be within the home range associated with the Superior bald eagle territory. This territory experiences considerable levels of human disturbance associated with the town of Superior, Highway 90, the Montana Rail Link railroad, human residences, agricultural operations, timber management, and various forms of summer and winter recreation. Proposed activities could occur during the later portions of the nesting season or the non-nesting season. No measurable disturbance to bald eagles would occur. No changes in the availability of large snags or emergent trees that could be used as nest or perch trees could occur in the home range.

W-4 Up to 368 acres of preferred fisher covertypes and would be thinned, however some of these potential future habitat are relatively dry with higher percentages of Douglas-fir and ponderosa pine than generally found in more suitable fisher types. Some of these preferred covertypes could develop into marginal upland habitats in the future. Proposed activities in preferred covertypes could improve tree growth, which could facilitate development of attributes that would enable fisher use of these stands sooner than if left untreated. Activities in upland fisher habitats would not change habitat availability, but could alter overall habitat quality slightly with decreases in tree density.

W-5. Roughly 287 acres of flammulated owl habitats would be thinned, which would further open the canopy while favoring western larch, ponderosa pine, and Douglas-fir. The more open stand conditions, the retention of fire adapted tree species, and the maintenance of snags would move the proposed project area toward historical conditions, which is preferred flammulated owl habitat. Proposed activities could occur during the latter part of the flammulated owl nesting season, which could introduce some disturbance of nesting owls, but activities would not affect nesting structures.

W-6. Gray wolves are in the vicinity and the project area has been partially in the Mineral Mountain, Keystone, and Superior annual wolf pack home ranges in the past. Proposed activities would not occur during the spring when wolves are most sensitive at den or rendezvous sites. Deer, elk, and moose winter range exists in portions of the project area (see comment 8). Minor changes to existing thermal cover on these winter range areas would be anticipated, but no appreciable change in big game use would be anticipated, thus limited effects to wolf prey species would be anticipated.

W-7. Minor amounts of pileated woodpecker habitats would receive treatments. No appreciable change to pileated woodpecker habitats would be anticipated given the nature of the proposed activities. Activities would avoid the spring nesting period and potential for disturbance would be minimal.

W-8. Elk, deer, and moose use the project area much of the non-winter period. Approximately 14 acres of white-tailed deer winter range, 22 acres of mule deer winter range, 345 acres of elk winter range, and 155 acres of moose winter range exist in the proposed thinning units. Minor reductions to the thermal cover attributes in these stands would be anticipated with the

proposed activities. Negligible changes to security habitat would occur, but no changes to open roads or motorized human access would occur.

Wildlife Mitigations:

- Motorized public access would be restricted at all times on restricted roads that are opened for proposed activities.
- Contractors and purchasers conducting contract operations would be prohibited from carrying firearms while on duty.
- Food, garbage, and other attractants would be stored in a bear-resistant manner.
- Retain small shade tolerant trees (such as sub-alpine fir and spruce) where possible in the 12 Honest Miles thinning units to provide potential habitat structure for snowshoe hares by increasing the levels of horizontal cover and accelerating the development of multi-storied stands.

AIR QUALITY:

Air Quality	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
No-Action														
Smoke	**X**				**x**				**X**					
Dust	**x**				**X**				**X**					
Action														
Smoke		**x**			**X**				**x**				**y**	**1**
Dust		**X**			**x**				**X**				**y**	**2**

Comments:

1. If units are hand piled, small hand piles within the unit would be burned.

2. Increased road traffic from contractor(s) commuting to thinning units may increase dust.

Air Quality Mitigations:

- Small hand piles would be burned in the spring or fall depending on conditions. DNRC would work closely with the Monitoring Unit of the Montana/Idaho Airshed Group and obtain special smoke dispersion forecasts in order to burn on only ideal days.

- Dust from thinning operations would be monitored.

Would the No-Action or Action Alternatives result in potential impacts to:	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
No-Action														
Historical or Archaeological Sites	**X**				**X**				**x**					

Would the No-Action or Action Alternatives result in potential impacts to:	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
Aesthetics		**X**			**X**				**X**					
Demands on Environmental Resources of Land, Water, or Energy	**X**				**x**				**X**					
Action														
Historical or Archaeological Sites	**X**				**X**				**X**					
Aesthetics		**X**			**X**					**X**			**Y**	**1**
Demands on Environmental Resources of Land, Water, or Energy	**X**				**X**				**X**					

Comments:

1. Lop-and-scattered slash from hand thinned units is often noticeable for 1-2 years post-treatment.

Mitigations:

- If a thinning unit is lop-and-scattered, slash would usually settle after 1-2 years of snowload. As the slash settles and decomposes it becomes less noticeable.

OTHER ENVIRONMENTAL DOCUMENTS PERTINENT TO THE AREA: *List other studies, plans or projects on this tract. Determine cumulative impacts likely to occur as a result of current private, state or federal actions in the analysis area, and from future proposed state actions in the analysis area that are under MEPA review (scoped) or permitting review by any state agency.*

- MSO West FY17 PCT EA

Impacts on the Human Population

Evaluation of the impacts on the proposed action including **direct, secondary, and cumulative** impacts on the Human Population.

Would the No-Action or Action Alternatives result in potential impacts to:	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
No-Action														
Health and Human Safety	**x**				**X**				**X**					
Industrial, Commercial and Agricultural Activities	**x**				**X**				**X**					

Would the No-Action or Action Alternatives result in potential impacts to:	Impact												Can Impact Be Mitigated?	Comment Number
	Direct				Secondary				Cumulative					
	No	Low	Mod	High	No	Low	Mod	High	No	Low	Mod	High		
and Production														
Quantity and Distribution of Employment	**x**				**X**				**X**					
Local Tax Base and Tax Revenues	**X**				**X**				**X**					
Demand for Government Services	**X**				**X**				**X**					
Access To and Quality of Recreational and Wilderness Activities	**X**				**X**				**X**					
Density and Distribution of population and housing	**X**				**X**				**X**					
Social Structures and Mores	**X**				**X**				**X**					
Cultural Uniqueness and Diversity	**X**				**X**				**X**					
Action														
Health and Human Safety	**X**				**X**				**X**					
Industrial, Commercial and Agricultural Activities and Production	**x**				**X**				**X**					
Quantity and Distribution of Employment		**X**			**X**				**X**				**N/A**	**1**
Local Tax Base and Tax Revenues	**X**				**X**				**X**					
Demand for Government Services	**X**				**X**				**X**					
Access To and Quality of Recreational and Wilderness Activities	**X**				**X**				**X**					
Density and Distribution of population and housing	**X**				**X**				**X**					
Social Structures and Mores	**X**				**X**				**X**					
Cultural Uniqueness and Diversity	**X**				**X**				**x**					

***Comments**:*

The project size is of a scale that would not have a large effect on local employment; however each unit may provide a private contractor with 1-5 months of employment for him/herself and his/her employees.

Mitigations:
N/A

Locally Adopted Environmental Plans and Goals: *List State, County, City, USFS, BLM, Tribal, and other zoning or management plans, and identify how they would affect this project.*
None

Other Appropriate Social and Economic Circumstances:

No Action: The No Action alternative would generate no cost to the trust at this time, existing forest conditions would persist.

Action: The proposed pre-commercial thinning would initially generate cost to the trust; however this would be an investment in increased productivity for the stand. This increased productivity shall result in increased volume, available at an earlier date.
Direct Costs associated with this project are estimated to be ***$129,840***. This figure is achieved by multiplying the estimated number of ***acres (541)*** by estimated ***cost per acre $240***. This cost estimate is assumed from previous projects. The most recent pre-commercial thinning contract yielded a cost of $248 per/acre. The assumed cost shall be recovered, by a net increase in growth, thus lessening rotation between harvests by up to thirty years.

References

DNRC 1996. State forest land management plan: final environmental impact statement (and appendixes). Montana Department of Natural Resources and Conservation, Forest Management Bureau, Missoula, Montana.

DNRC. 2010. Montana Department of Natural Resources and Conservation Forested State Trust Lands Habitat Conservation Plan: Final EIS, Volume II, Forest Management Bureau, Missoula, Montana.

Does the proposed action involve potential risks or adverse effects that are uncertain but extremely harmful if they were to occur?
NO

Does the proposed action have impacts that are individually minor, but cumulatively significant or potentially significant?
NO

Environmental Assessment Checklist Prepared By:

Name: Bill Burdick
Title: Management Forester

Date: 12/21/2016

Finding

Alternative Selected
The Action Alternative

Significance of Potential Impacts

A. The Action Alternative meets the specific Objectives of the Proposed Action as described on page 1 of the EA. The Action Alternative is likely to produce an economic return to the Acquired Lands Trust in the long run, while providing a mechanism whereby the existing timber stands would be moved towards conditions more like those which existed historically.

B. The analysis of identified issues did not disclose any reason compelling the DNRC to not implement this pre-commercial thinning project.

C. The Action Alternative includes mitigation activities to address environmental concerns identified during the project analysis.

Need for Further Environmental Analysis

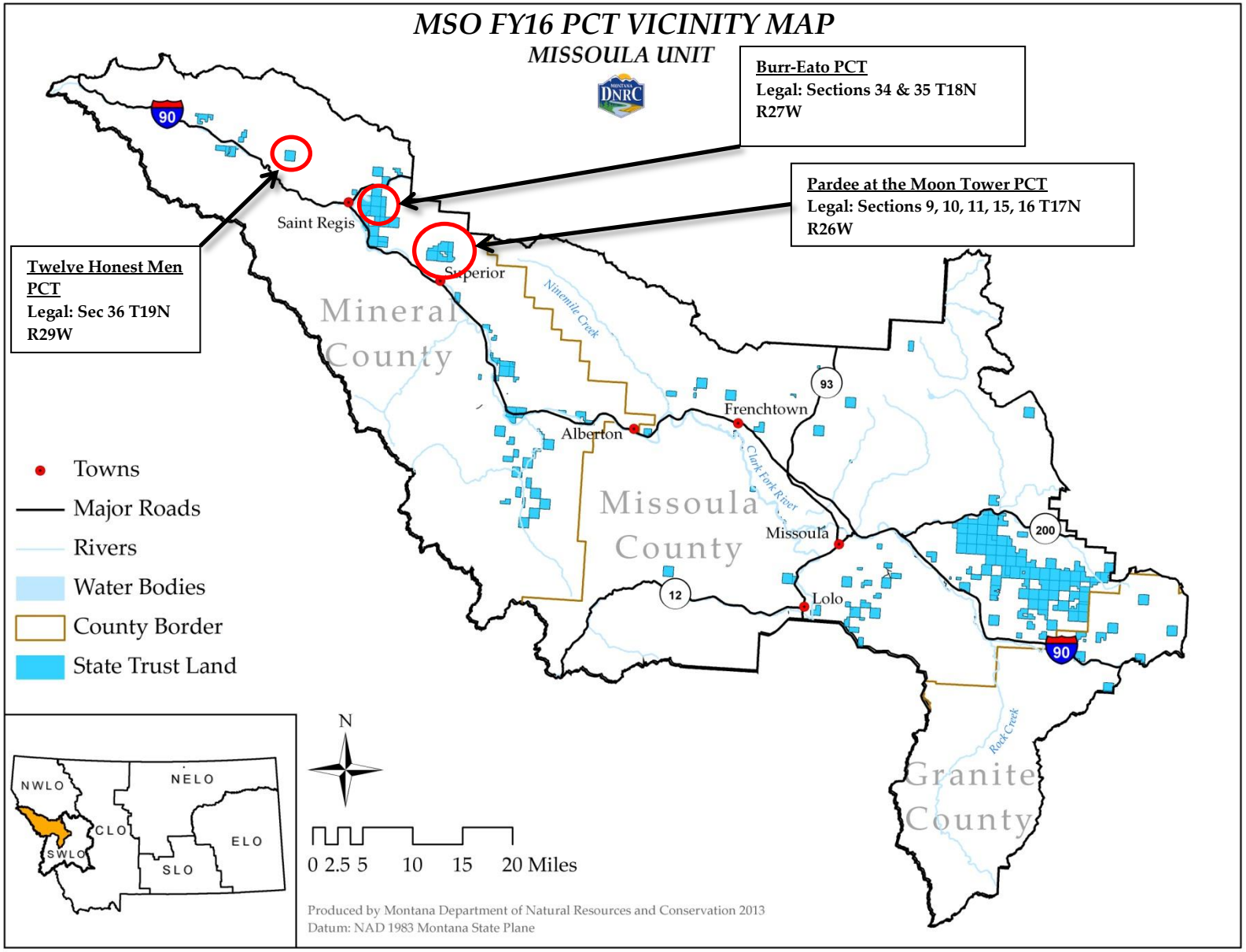
[ ]	EIS	[ ]	More Detailed EA	[X]	No Further Analysis

Environmental Assessment Checklist Approved By:

Name: Jonathan Hansen
Title: Missoula Unit Manager
Date: February 24, 2017
Signature: *Jonathan Hansen*

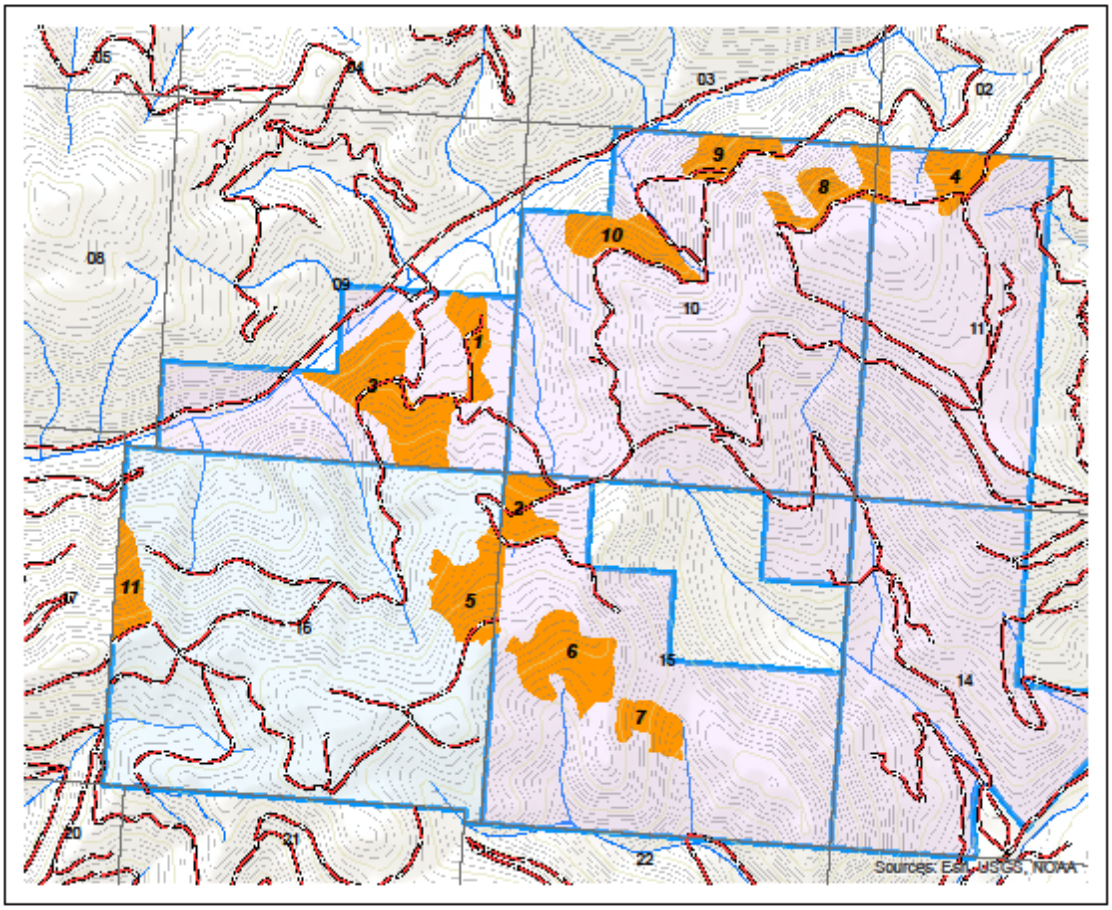
Attachment A- Maps

A-1: Timber Sale Vicinity Map



A-2: PCT Units

Pardee @ the Moon Tower PCT (Units 1-11)
Sections 9, 10, 11, 15 & 16 T17N R26W
DNRC-MISSOULA UNIT



0 0.25 0.5 1 1.5 2 Miles

N
W E
S

Leave only those trees exhibiting quality characteristics (no forked tops, crook, disease or insects). No lazy straps, high stumps or live limbs will be permitted. The species order of preference is WL, PP, DF, LPP. All white pine are to be left regardless of spacing. Keep slash out of SMZ's.

Spacing requirements:

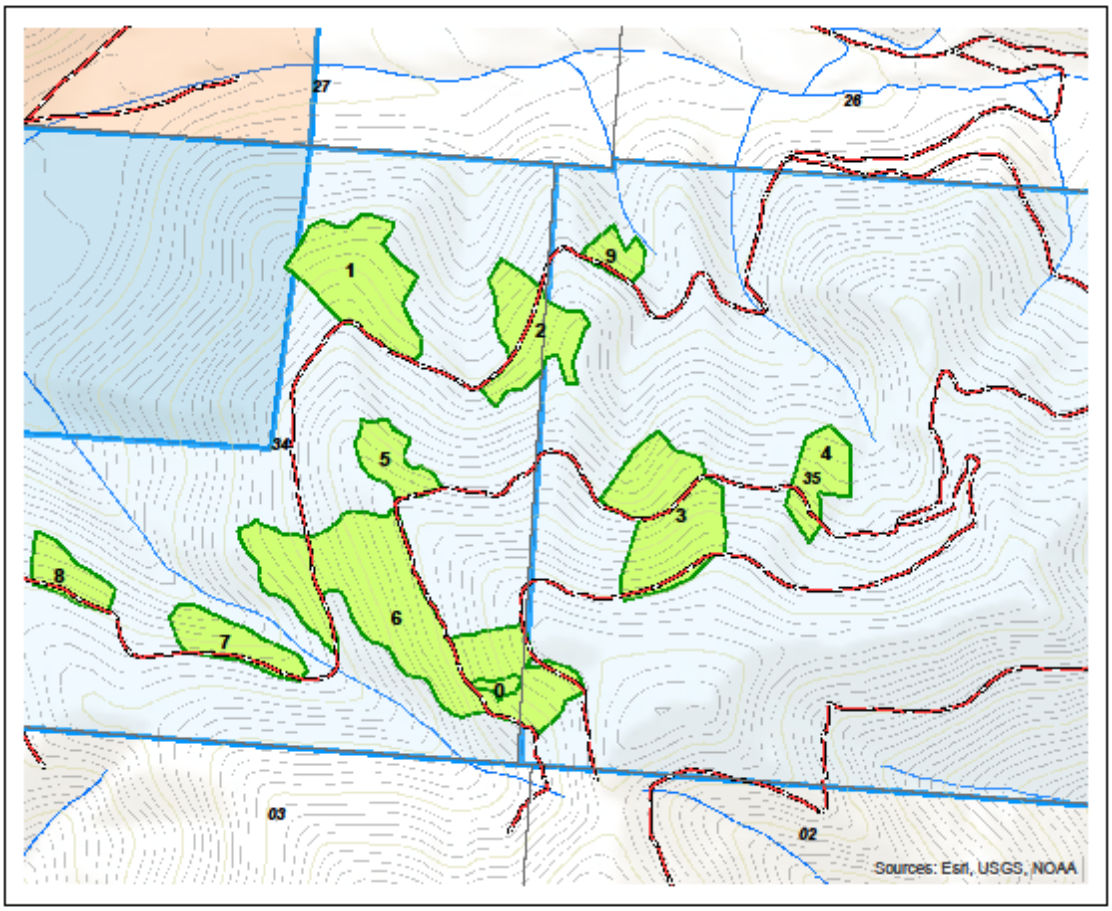
Unit 1 (14 acres) 12'x12'
Unit 2 (14 acres) 12'x12'
Unit 3 (51 acres) 12'x12'
Unit 4 (15 acres) 12'x12'
Unit 5 (31 acres) 12'x12'
Unit 6 (36 acres) 12'x12'
Unit 7 (14 acres):12'X12'
Unit 8 (23 acres):13'X13'
Unit 9 (14 acres):12' X12'
Unit10 (23 acres):12'x12'
Unit11(15 acres):12' x12'

Unit Boundary: Red & Yellow Striped Flags and Purple Three Stripe Paint

Roads
Pardee @ the Moon Tower PCT units
State Trust Lands
Streams

B. Burdick
12/21/2016

Burr-Eato PCT (Units 1-9)
Sections 34 &35 T18N R27W
DNRC-MISSOULA UNIT



0 0.125 0.25 0.5 0.75 1 Miles

N
W E
S

Leave only those trees exhibiting quality characteristics (no forked tops, crook, disease or insects). No lazy straps, high stumps or live limbs will be permitted. The species order of preference is WL, PP, DF, LPP. All white pine are to be left regardless of spacing. Keep slash out of SMZ's.

Burr-Eato PCT Units
State Trust Lands
Roads
Streams

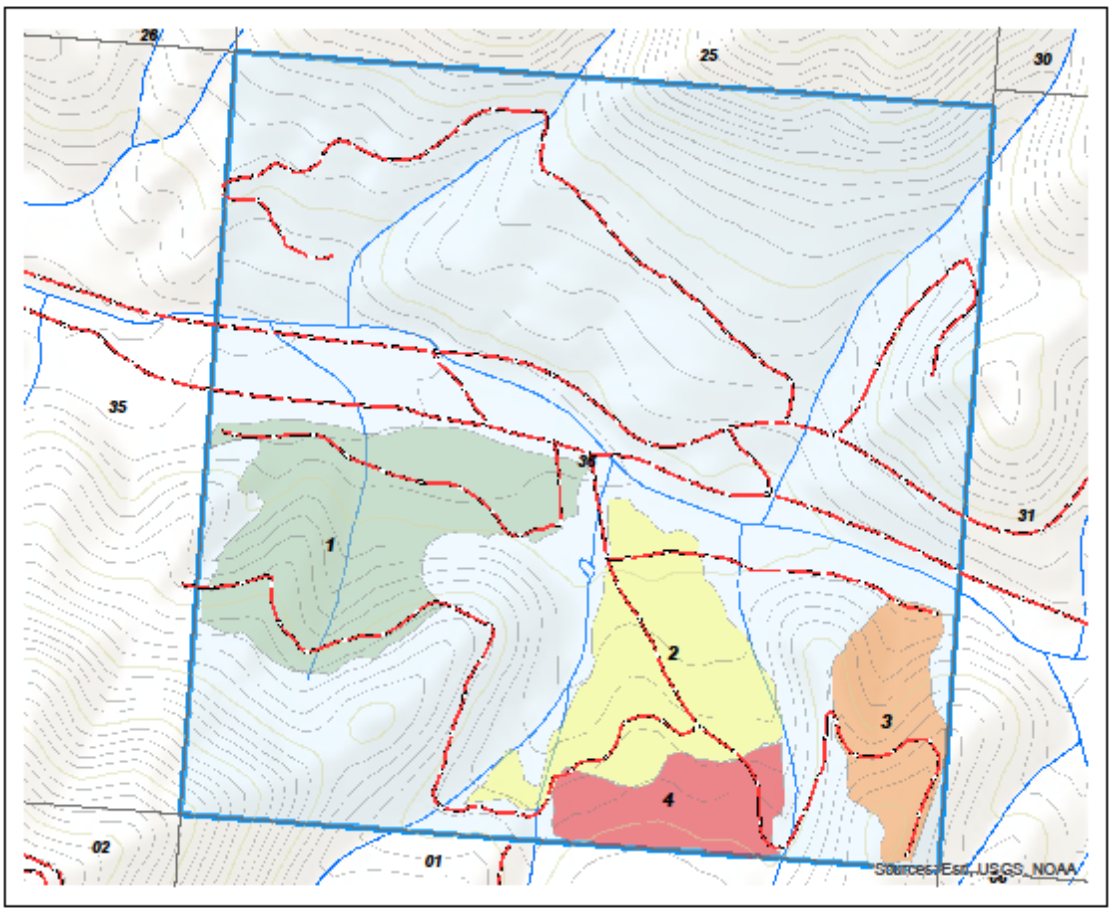
Spacing requirements:

Unit 1 (19 acres): 13' x 13'
Unit 2 (15 acres): 13 'x 13'
Unit 3 (22 acres): 13' x 13'
Unit 4 (8 acres): 13' x 13'
Unit 5 (6 acres): 13' x 13'
Unit 6 (49 acres):12' x 12'
Unit 7 (7 acres):13' x 13'
Unit 8 (6 acres):13' x 13'
Unit 9 (3 acres): 13' x 13'

Unit Boundary: Red & Yellow Striped Flags and Purple Three Stripe Paint

B. Burdick
12/21/2016

12 Honest Miles PCT (Units 1-4)
Section 36 T19N R29W
DNRC-MISSOULA UNIT



0 0.1 0.2 0.4 0.6 0.8 Miles

N
W E
S

Leave only those trees exhibiting quality characteristics (no forked tops, crook, disease or insects). No lazy straps, high stumps or live limbs will be permitted. The species order of preference is WL, PP, DF, LPP. All white pine are to be left regardless of spacing. Keep slash out of SMZ's.

Spacing requirements:
Unit 1 (65 acres): 12' x 12'
Unit 2 (46 acres): 12' x 12'
Unit 3 (24 acres):12' x 12'
Unit 4 (20acres):12' x 12'

Unit Boundary: Red & Yellow Striped Flags and Purple Three Stripe Paint

Unit
- 1
- 2
- 3
- 4
- State Trust Lands
- Roads
- Streams

B. Burdick
12/21/2016